LI. *An Account of ſome foſſile Fruits, and other Bodies, found in the Iſland of* Shepey. *By* James Parſons, *M. D. F. R. S.*

To the Right Honourable the EARL *of* MACCLESFIELD, Preſident *of the* Royal Society.

My Lord, Sept. 25, 1757.

Read Dec. 15. 1757. BEING ever deſirous to promote the buſineſs of this learned Society, I could not loſe the opportunity that preſented, of laying before you an account, and drawings (*See* TAB. XV. & XVI.), of a moſt curious parcel of foſſil fruits, and ſome other bodies, ſent me from Shepey-Iſland, by my ingenious friend Mr. Jacob, of Faverſham, Surgeon, and Fellow of the Antiquary Society.

I do not remember, that foſſil ſeeds, or fruits, are recorded in our Tranſactions, tho' many of other kinds have places in them; nor indeed that the memoirs of other academies have made mention of any ſuch fruits; and therefore, as theſe are chiefly pyritical, and conſequently liable to fall to pieces, I thought it neceſſary to make drawings of them while in a ſound ſtate, in order for engraving, if the Society ſhall think fit; leſt their being ſo ſubject to moulder away might put it out of my power to preſerve their forms. However, I have great hopes I ſhall be able to preſerve the greater part of them intire till they are ſhewed to the Society.

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In deſcribing theſe bodies, we ſhall be obliged to make the beſt conjectures we can of ſome of them only; for ſeveral are ſufficiently obvious to every naturaliſt, and eaſily known by comparing them to ſuch recent fruits, as are frequent enough among us. Some of them are abſolutely exotics; and indeed they are all rare and curious, and, in my humble opinion, well worth the notice of the Royal Society.

Doctor Woodward's catalogue *, which is ſo ample and full of all kinds of foſſil bodies, has only a very few fruits; and theſe are only ſome hazle nuts found in different places, a few pine-cones, and laryxes; and one fruit, which was taken for an unripe nutmeg. In this collection before us they are all very different, and ſuch as have not been ſeen before.

It will not be amiſs, in this place, to give a ſhort detail of ſuch bodies as are capable of either being petrified themſelves, or of leaving their impreſſions in ſtony matter. By being petrified, is meant being impregnated with ſtony, pyritical, or any other metalline or ſparry matter; for there are inumerable ſpecimens, wherein all theſe are apparent.

Testaceous *and* Crustaceous Animals.

The ſhelly matter of theſe is of ſo compact and dry a nature, that they will endure for ages: and if in a ſoil or bed where moiſture has acceſs, they will receive ſtony matter into their pores, and become ponderous in proportion to the quantity imbibed. If in a dry

* Since my writing this diſcourſe, Dr. Maſon informs me, that theſe are found no other than recent nuts and laryxes.

place

place, they will remain fair and ſharp, ſuffering very little change by any length of time; whilſt the fleſh of theſe, being ſubject to putrifaction, is ſoon deſtroyed; and yet, according to circumſtances that happen, ſome of theſe may be replaced in due form by ſtony particles. I have a gryphites, with the form of the fiſh in its place, as is the caſe in ſeveral of the oyſter kinds. This may be occaſioned by the ſhells being cloſe, or nearly ſo, and ſtony matter gradually inſinuating into their cavity, ſo as to fill up the whole.

Wood.

The kinds of wood found foſſil are very different: ſome are of a firmer texture than others: and this too is according to the places wherein they are depoſited. Some I have ſeen ſo highly impregnated with a fine ſtony and pyritical matter, as to bear a poliſh like a pebble; ſome, tho' quite reduced to ſtone, yet preſerving the fibrous appearance of the original ſtate; and ſome which is found in boggy bottoms, being not at all changed, except in color: this is called bog oak, or bog deal, well known to country people in many places of theſe three kingdoms, who light themſelves about their buſineſs with ſlips of this wood, cut on purpoſe inſtead of candles, as it burns with a clear and durable flame. It is remarkable, that altho' oak or fir ſhall lie ages immerſed in water under ground, it ſhall not putrify; but acquire ſuch ſulphureous particles by lying in ſteep, in the bog-water, as to qualify it for this uſe. Other wood, depoſited in marly ground, is found incruſted over, trunk and branches, with a white cruſt; the wood remaining intire within.

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At other times, wood thus incruſted ſhall be eroded by the matter which covers it, having ſomething acrimonious in its ſubſtance. We may add to theſe, cluſters of the twigs of ſhrubs, and ſmall wood, which we find flakes of, incruſted with ſparry or calcarious matter, in many places; parts of which are totally changed into that matter, whilſt others are only inveloped with it.

Bones *of* Animals.

We ſee, by every day's experience, that the human ſkeleton moulders to duſt in a very few years, when buried in mould: ſo it does even in vaults, where the coffins are kept dry. In the firſt caſe, the moiſture and ſalts of the earth divide and diſſolve the texture of the bones; in the latter, thoſe of the air, which gradually inſinuate themſelves into them, and at length deſtroy them. How long a ſkeleton whoſe bones are well dried and prepared, being totally deprived of its medullary ſubſtance, will laſt, as we now order them for anatomical purpoſes, we cannot ſay: but it may be reaſonably conjectured, that they will undergo the fate of the ſofter kinds of wood, ſuch as beech, which grows rotten in no great number of years; becauſe their internal ſubſtance is ſpungy and cellular, and their cruſt is very thin, except about the middle of the bones of the arm and thigh, I mean the humerus and fœmur. The ſame deſtruction would happen, if bodies were depoſited in a ſandy ſoil; becauſe water finds its way either by dripping downwards, or by ſprings underneath. But human ſkeletons have been found intire within a rock, where neither moiſ-

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ture nor air could get at them. Mr. Minors, an eminent Surgeon and Anatomiſt of the Middleſex-hoſpital, when he was in the Army, at Gibraltar, ſaw an intire ſkeleton, ſtanding upright, in a dry rock, part of which had been blown up with gunpowder, in carrying on ſome works in the fortifications, which left the ſkeleton quite expoſed. Indeed, the bones of Elephants have been found in Shepey-Iſland, but much deſtroyed, ſeveral of which I have in my Collection; an account of which we have in the laſt volume but one * of our Tranſactions; their ſize and ſubſtance being ſo conſiderable, as to reſiſt for a long time that decay which thoſe of the human could not withſtand. To theſe we may add the horns of large animals, as the elk, and others, which have been found in bogs, preſerved as the bog-oak, *&c.* mentioned.

TEETH *and* PALATES *of* FISHES *and other Animals.*

Theſe are of ſo hard and firm a texture, as to ſuffer no great change, whereſoever found; for we ſee, that no eroſion appears in them, their enamel and its poliſh being intirely preſerved; yet ſometimes their roots will be found changed, eſpecially in the yellow ones, having no enamel to guard them in their roots.

Parts of VEGETABLES.

The leaves of plants, whoſe fibres are firm and dry, will endure for a long time; but thoſe of a ſucculent nature never can, as they putrify very ſoon. We ſee the leaves of ferns of ſeveral kinds, polypodium,

* Vol. xlviii.

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tricomanes, and other capillary plants, with nodules of ſtone formed about them; flags, reeds, ruſhes, equiſetum, and many ſuch, of a firm texture, are found in ſlate and ſtone; and even the iuli of trees are ſaid to have been found foſſil as well as their leaves.

Seeds *and* Fruits.

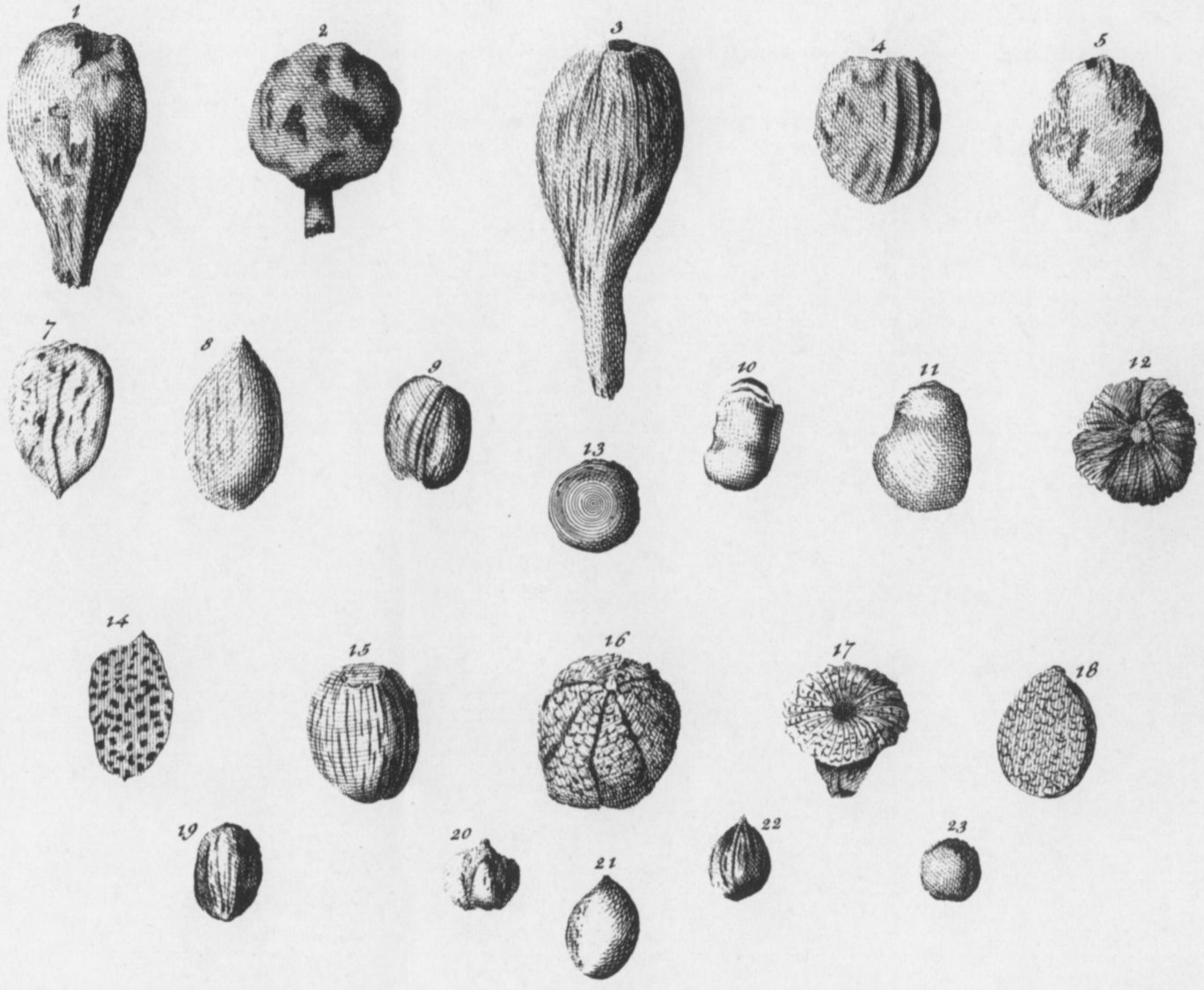
All ſeeds and the ſtones of fruits, having a firm texture, are alſo capable of being ſtrongly impregnated with ſtony and pyritical matter; and I make no doubt but that the ſmaller ſeeds, if carefully looked for, might be found foſſil, as well as theſe before you; ſuch, I mean, as have a firmneſs in the covering; but being ſmall, and mixt with the dirt, ſand, and the like, probably is the reaſon of their being overlooked. Fruits of various kinds are found petrified; but this is only in their green ſtate, when they are hard enough to endure till they are impregnated with ſtony or mineral particles. The rudiments of fruits, when once well formed, and a little advanced, are firm and acid: and the more remote they are from maturity, the more ſecure from putrifaction; and their acid juice is no ſmall help to their preſervation from growing ſoon rotten. But indeed, when the fruit advances in growth, the texture grows gradually more lax; the acid juices are now beginning to be replaced by ſaccharine or others more ſoft; the fibres are driven farther aſunder, and they now arrive at their moſt ripe ſtate: and the utmoſt maturity of fruits is the next ſtep to putrifaction. Hence they are deſtroyed before ſtony or other particles can have time enough to impregnate them: and this is exactly the caſe with the fleſh of animals of every kind. The

huſks and hard calyces of fruits, as well as their ſtones, are alſo ſuſceptible of petrifaction.

If theſe fruits, which I have the honour to lay before you, are antediluvian, one would be apt to imagine they, in ſome meaſure, point out, with Dr. Woodward, the time of year in which the deluge began; which he thinks was in May: and yet this very opinion is liable to ſome objections; becauſe altho' fruits capable of being petrified, from their green ſtate, may be pretty well formed in May here, as well as in the ſame latitude elſewhere, in favour of this opinion; yet there are the ſtones of fruits, found foſſil, ſo perfect, as to make one imagine they were very ripe, when depoſited in the places where they are diſcovered; which would induce one to think the deluge happened nearer Autumn, unleſs we could think them the productions of more ſouthern latitudes, where perhaps their fruits are brought to perfection before ours are well formed.

What follows is a catalogue of theſe foſſil fruits &c. before you: and I ſhould be glad, if any of the gentlemen would take the trouble of examining them, in order to aſſiſt in our conjectures about ſuch of them, as appear doubtful: but firſt beg leave to inſert the following remark:

I cannot omit an obſervation of Doctor Maſon, Woodwardian profeſſor, in this place; which is well worth notice, and indeed which I never attended to. It regards the impreſſions of fiſhes upon ſlate. Now there are ſeveral kinds of ſlate, which have ſuch impreſſions upon them: in ſome there remains only the bare impreſſion, without any part of the fiſh; in others the ſcales only, but retaining the intire form of the animal;



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animal; and in others no part adheres to the ſlate, but the ſkeleton, or part of it, moſt commonly the ſpine. He ſays that he always obſerved, that the bones are never ſeen but upon the grey or blue ſlate, or their impreſſions; and that the ſcales or ſkin are to be found only upon the black ſtone or ſlate; which makes him conjecture, that ſomething eroſive in the grey ſlate deſtroys every part but the bony ſyſtem; but that the black, being of a more ſoft and unctuous nature, preſerves the ſcales, and often the very ſkin. This, however, muſt bereferred to further obſervation.

TAB. XV.

Fig. 1. 3. Theſe two bodies ſeem to be figs, petrified when hard and green; being, as I have juſt obſerved, then capable of receiving the pyritical particles, with which they are manifeſtly impregnated. One is more perfect in its form than the other; and they are now ſhooting their ſalts, and will ſoon fall to pieces.

Fig. 2. appears to be a Myrobalan, diſtinguiſhed from the other ſpecies of that name by its round figure; and is called the belleric Myrobalan. It is nearly deſtroyed by the pyritical matter, and will not long remain whole.

Fig. 4. ſeems to be a ſpecies of Phaſeolus, one of thoſe eſpecially diſtinguiſhed by the fruits. *Fructibus ſplendentibus nigris.*

Fig. 5. Another Phaſeolus.

Fig. 7. Another. See *Fig.* 4.

Fig. 8. Semen Cucurbitæ, a large ſpecies of American gourd.

Fig. 9. Coffee-berries.

Fig. 10, 11. Two ſpecies of Beans, very apparent.

Fig. 12. Unknown. This, however, appears to be a fruit, with the calyx running up, and embracing it, in its hard green ſtate; being ſomewhat compreſſed on the upper part, as it lay confined in the earth.

Fig. 13. *An Staphilodendri ſpecies?* The learned and reverend Dr. Hales gave me, ſome years ago, a handful of the recent fruits, one or two of which are ſent with this foſſil one, for your conſideration. He had them from Bengal, and called them, in the Indian name, Neermelis; and ſaid the natives uſed them to fine down liquors.

Fig. 14. A compreſſed pod of the Arachidna, or Underground-Pea. The full-grown pods are much larger, but of various ſizes, as are other kinds. This, however, ſeems to have been, when depoſited where it was found, not ſo far advanced. It has the reticulated ſurface, the apex on one ſide, and every other character of that fruit or ſeed-pod, but ſomewhat compreſſed.

Fig. 15. is evidently an Acorn. We have of this ſpecies here, and in America alſo.

Fig. 16. An exotic fruit, like a ſmall melon; but uncertain. It is ſomewhat deformed by compreſſion.

Fig. 17. This I took at firſt for a fruit; but now I rather believe it a Fungoides of a very pretty kind.

Fig. 18

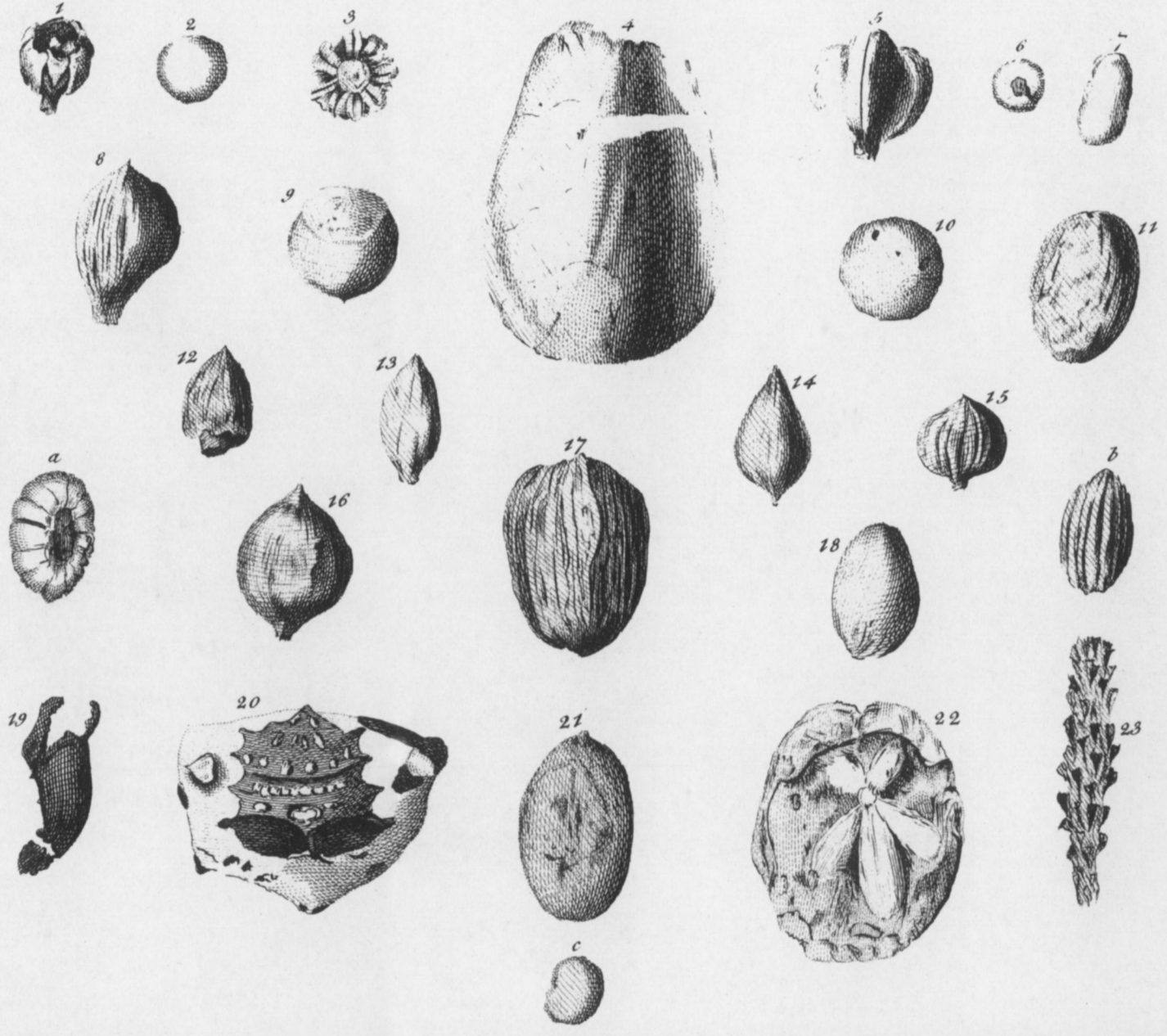
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Fig. 18. *An Anguria?* I take it for a ſeed of a ſpecies of water-melon.

Fig. 19. ſeems a ſmall plumb-ſtone.

Fig. 20. Unknown. The calyx ſeems to run up and embrace this fruit towards the apex.

Fig. 21. Unknown. This reſembles an American ſeed, which I have in my collection, but do not know its name. Its apex is inclining to one ſide; and it appears to have had a ſtrong pedicle.

Fig. 22. *An Lachryma Jobi?*

Fig. 23. A Cherry-ſtone.

TAB. XVI.

Fig. 1. *An Euonymi ſpecies?* If this be an Euonymus, it is not ſo far advanced as to form the ſeeds; and is therefore to be conſidered only in its progreſs from the flower towards ſeeding: which is the caſe in ſeveral of theſe, whoſe calyces appear ſtill upon them, and hinder us from abſolutely determining what they are.

Fig. 2. A berry of the Sapindus, or Soap-tree, of America, being not at all deformed, only having a little lump of pyrites upon it: but there is another quite free.

Fig. 3. *Huræ Germen.* This is undoubtedly the young Sand-box, or fruit of the Hura, ſo well known for its beautiful form to the curious, who collect ſpecimens of natural hiſtory; and ſeems to ſhew the time of the deluge.

Fig. 4. This, I think, is certainly the ſtone of an eaſtern Mango; ſuch as comes over to us pickled,

pickled, and, the ſtone being opened on one ſide, is generally ſtuffed with ſpices.

Fig. 5. *Euonymi latifolii ſpecies.* This is a large ſpecies of Euonymus, perhaps of Cluſius.

Fig. 6. This body ſeems to be a Milleped, or Woodlouſe. It is turned round, the two extremities meeting; which is the attitude aſſumed by theſe animals, upon being in any-wiſe obſtructed in their paſſage, or handled.

Fig. 7. A ſmall long Bean, like our horſe-bean; but longer than any we have in England.

Fig. 8. Unknown to me.

Fig. 9. A ſpecies of Horſe-cheſnut from America.

Fig. 10. The external huſk of the fruit of the Sapindus, or Soap-tree.

Fig. 11. I cannot determine whether this be an Olive, or the yellow Myrobalan; but believe it the Myrobalan.

Fig. 12. *An Palmæ ſpecies?* It ſeems a ſmall Palma-coco.

Fig. 13, 14. unknown, as well as *fig.* 15.

Fig. 16. Unknown. The reaſon of the four laſt being not to be diſtinguiſhed is, that they ſeem to be the buds of their ſeveral ſpecies, before they were perfectly formed. So that while ſome of the antediluvian productions are mature, others appear to be premature; and conſequently one would be inclined to think them the inhabitants of places of different latitudes.

Fig. 17. A ſpecies of foreign Walnut, injured and compreſſed.

Fig. 18. A Plumb-ſtone.

Fig. 19. The claw of an American Crab; which, being

being on the oppoſite ſide of the maſs containing the body, could not come in view with it at the ſame time.

Fig. 20. The body of the crab, with other parts, appearing thro' the ſtony matter that invelopes it, which appears to be an induration of yellow clay.

Fig. 21. ſeems a long American Phaſeolus. Part of the petrified huſk is upon it.

Fig. 22. An American Echinite of the flat kind, much reſembling that ſpecies which Rumphius calls *Echinus ſulcatus primus.*

Fig. 23. *Ariſta cujuſdam Graminis.* This body has all the characteriſtics of an ear of corn, or ſome ſpecies of graſs, of which there are many.

This has been taken for a ſpine of an Echinus: but, as we are to conſider its neareſt reſemblance to whatſoever body, we muſt conclude it as we have ſaid. I never ſaw any ſpine in the leaſt like it; but an ear of corn, ripe and dry, is as ſuſceptible of being petrified, as a cruſtaceous animal, in every reſpect. Indeed the ſpiculæ of the ear, each ariſing from the grain, being very ſlender, are of courſe deſtroyed during the petrifaction; but the form of the ear is actually preſerved, as much as the nature and circumſtances of the thing will allow.

Fig. a. A manifeſt ſpecies of Pediculus Marinus crumped up.

b. A Seed-veſſel, given me by Mr. Da Coſta, found in a clay-pit in Staffordſhire.

c. Cocculus Indicus.

LII.